REMARKS

Reconsideration of this application is respectfully requested.

Various claims in this application were rejected as being unpatentable over a combination of the patents to Horn, et al. (4,205,569) and Scott (1,967,374). However, in the absence of applicant's own disclosure, it would not be obvious to combine the disclosures in these two patents. This is because the tube feed and cutter device of Scott uses a tube carriage 42 (Fig. 7 of Scott) to move a tube onto a mandrel in a first direction from an entry side of the device. The tube is cut into sections while the tube is on the mandrel. The tube carriage 42 then removes the sections from the mandrel in a second, opposite direction through the entry side of the device (see page 3, columns 28 – 49 and 98 – 114 of Scott).

If an attempt was made to cut a long tube, similar to the tube T of Horn, et al, with the apparatus of Scott, the Scott apparatus would be inoperative. This is because the presence of a portion of a long tube T of Horn, et al. in the feeding zone of the Scott apparatus would block removal of the cut sections of the tube from the mandrel 8 of Scott by the tube carriage 42 of Scott.

The patent to Horn, et al. teaches that the jaw plates 76 and 62 (Fig. 1A of Horn, et al.) will grip the tube T. It is impossible for the tube T of Horn, et al. to rotate during cutting of the tube as required by the apparatus of Scott. In the absence of applicant's own disclosure, it would not be obvious to combine the apparatus of Scott with the apparatus of Horn, et al.

In addition, claims were rejected as being unpatentable over a combination of the patents to Horn, et al. (4,205,569), Scott (1,967,374), and Harris

(4,671,150). In the absence of applicant's own disclosure, it would not be obvious to combine the apparatus of Harris with the apparatus disclosed in the patents to Horn, et al. and/or Scott. In the patent to Horn, et al., the jaw plates 62 and 76 hold the tube T against rotation during feeding of the tube. In the patent to Scott, the tube clamp 70 holds the tube 55 against rotation during feeding of the tube. In the patent to Harris, the tube 16 is rotated during feeding of the tube. How is the apparatus disclosed in the patent to Horn, et al. and Scott to be modified to have rotation of the tube during feeding of the tube? Assuming, for some unknown reason, that it would be obvious to rotate the tubes of Horn, et al. and Scott, how are the tubes to be gripped during feeding? It would be impossible to utilize the apparatus of either Scott or Horn, et al. in association with a tube which is rotated during feeding of the tube.

In regard to the claims, claim 1 sets forth a method of processing a tube. The method includes the steps of rotating a mandrel and rotating a tube. A first portion of the tube is moved into a work station. The step of moving a first portion of the tube into the work station includes the step of rotating the tube about its longitudinal central axis. The tube is rotated at the same speed as the mandrel while the tube is spaced apart from the mandrel. The mandrel and tube are moved into a telescopic relationship while the mandrel and tube are rotating at the same speed.

A first portion of the tube is cut into a first plurality of sections while rotating the tube and the mandrel. A scrap section which is disposed on an end of the first portion of the tube is received at a scrap receiving location. Sections of the first

portion of the tube other than the scrap section are received at a second receiving location which is separate from the scrap receiving location.

The second portion of the tube is set forth in claim 1 as being moved into the work station while rotating the tube and mandrel at the same speed. The second portion of the tube is cut into a second plurality of sections. The second plurality of sections are directed to the second receiving location which is separate from the scrap receiving location.

Claim 1 defines over the prior art, and particularly the patents to Horn, et al. and Scott by setting forth the step of rotating the tube upon its longitudinal central axis at the same speed as the mandrel while the tube is spaced apart from the mandrel. The patent to Horn, et al. does not disclose a mandrel.

The patent to Scott discloses a mandrel 8. However, the tube of Scott can not be rotated while it is spaced apart from the mandrel as set forth in claim 1. This is because the tube is gripped by the tube clamping member 70 of Fig. 7 of Scott. The patent to Harris does not disclose a mandrel. If a mandrel was utilized in association with the tube of Harris, a cutting mechanism 24 of Harris would be inoperative because the mandrel would interfere with operation of the cutting mechanism.

In addition, claim 1 defines over the prior art by setting forth the step of moving a second portion of the tube into the work station while rotating the tube and mandrel at the same speed. In the patents to Horn, et al. and Scott, the tube is not rotated while it is moved into a work station. The patent to Harris does not disclose a mandrel and certainly does not disclose the concept of rotating a tube

in a mandrel as the tube is moved into a work station. In fact, if a mandrel was used with a tube of Harris, the cutting mechanism of Harris would be inoperative.

Claims 2 through 17, and 54 through 64 depend from claim 1 and define over the prior art for substantially the same reasons as does claim 1 and by virtue of the structure and function set forth in these claims taken in combination with the structure and function of claim 1. Specifically, claim 2 sets forth the step of cutting the first portion of the tube into sections as forming an end surface on the second portion of the tube. The step of moving the second portion of the tube into the work station while rotating the tube and mandrel at the same speed is performed with the end surface on the second portion of the tube leading. The patents to Horn and Scott do not rotate a tube while moving the tube into a work station. The patent to Scott discloses a mandrel. However, the patent to Scott does not contemplate that an end surface formed during cutting of a first portion of the tube will be leading during movement of a second portion of a tube into a work station.

Claim 3 depends from claim 1 and sets forth the step of pressing the first end portion of the tube against a stop surface under the influence of force transmitted from the second portion of tube to the first portion of the tube during cutting of the first portion of the tube. The patent to Horn, et al. does not contemplate that an end of a tube will be pressed against a stop surface in the manner set forth in claim 3. The Scott does not contemplate that the end portion of a tube will be pressed against a stop surface under the influence of force transmitted from a second portion of a tube to the first portion of the tube during cutting of the first portion of the tube. During cutting of the tube 55 of Scott, the

tube clamping member 70 (Fig. 7 of Scott) does not grip the tube and does not press an end of the tube against a stop surface.

Claim 4 depends from claim 1 and sets forth the step of pressing an end surface on the first portion of the tube against a stop surface while rotating the tube and mandrel at the same speed. The stop surface is in a first position during cutting of the first portion of the tube into a first plurality of sections. The stop surface is moved to a position spaced from the first position. The step of cutting the second portion of the tube includes pressing an end surface on the second portion of the tube against the stop surface with the stop surface in a position spaced from the first position. The patents to Horn, et al. and Scott do not disclose a stop surface which is moved from a first position and in which a portion of a tube is pressed against the stop surface while the stop surface is spaced from the first position.

Claim 5 depends from claim 1 and sets forth the step of rotating the tube and mandrel at the same speed about a longitudinal central axis of the tube during performance of the steps of cutting the first portion of the tube and cutting the second portion of the tube. None of the references even remotely suggest rotating a tube and mandrel about a longitudinal central axis of the tube during cutting of a first portion of the tube, moving a second portion of a tube into work station and cutting the second portion of the tube.

Claim 6 depends from claim 1 and sets forth the step of moving the first portion of the tube into the work station as including moving the first portion of the tube along a central axis of the tube while rotating the tube and mandrel at the

same speed about the longitudinal central axis of the tube. The step of moving the second portion of the tube into the work station includes moving the second portion of the tube along the longitudinal central axis of the tube while rotating the mandrel and tube at the same speed about the longitudinal central axis of the tube. During feeding of the tube T of Horn, et al., the tube is clamped against rotation. During feeding of the tube of Scott, the tube is clamped against rotation. It would be impossible to utilize the mechanisms disclosed in these patents with a feeding apparatus which rotates a mandrel and tube at the same speed about a longitudinal central axis of the tube during feeding of the tube.

Claim 7 depends from claim 1 and sets forth the step of moving the second portion of the tube in a direction away from the work station after performing the step of cutting the first portion of the tube and prior to performance of the step of moving the second portion of the tube into the work station. The step of moving the second portion of the tube away from the work station being performed while rotating the mandrel and the second portion of the tube. There is absolutely nothing in the prior art which suggest moving a second portion of a tube away from a work station while rotating a mandrel and the second portion of the tube.

Claim 8 depends from claim 1 and sets forth the step of rotating the mandrel while the tube and mandrel are in a telescopic relationship. The step of rotating the tube at the same speed as the mandrel includes applying force to the tube at a location based from the mandrel. The patent to Horn, et al. does not rotate the tube T. The patent to Scott does not rotate the tube under the influence of force applied to the tube at a location spaced from a mandrel.

Claim 9 depends from claim 1 and sets forth the step of moving a first portion of the tube into the work station as including moving the tube along a longitudinal central axis of the tube. The speed of movement of the tube along its longitudinal central axis is reduced. A stop surface is engaged with a leading end of the tube after reducing the speed of movement of the tube. The prior art does not disclose the step of engaging a stop surface with a leading end of a tube after reducing the speed of movement of the tube. The patent to Braun does not disclose this concept. Even though the movement of the feed unit 21 of Braun is controlled by control unit 41 to "adapt optimally the acceleration and speed of the pipe blank 33" this patent does not disclose reducing the speed of movement of a tube along its longitudinal axis and engaging a stop surface with a leading end of the tube after reducing the speed of movement of the tube.

Claim 10 depends from claim 9 and sets forth the step of pressing the leading end of the tube against the stop surface during cutting of the first portion of the tube into a plurality of sections. The patent to Braun, et al. discloses a clamping bush 27 which abuts the rear end face of a pipe link during clamping of clamping jaws 31. However, the patent to Braun, et al. does not disclose pressing the end of the pipe against the stop surface during cutting of a first portion of the tube into a first plurality of sections in the manner set forth in claim 10.

Claim 11 depends from claim 1 and sets forth the step of moving the first portion of the tube into the work station as including simultaneously moving the tube along its central axis and rotating the tube about its central axis. It is impossible to use the apparatus disclosed in either the patent to Horn, et al. or the

patent to Scott to move the tube into a work station while rotating the tube about its central axis.

Claim 12 depends from claim 1 and sets forth the step of rotating the first and second portions of the tube about a longitudinal central axis of the tube during cutting of the first portion of the tube.

Claim 13 depends from claim 1 and sets forth the step of moving the first portion of the tube into a work station as including operating a feed assembly to move the tube along its longitudinal axis.

Claim 14 depends from claim 13 and sets forth the step of moving the first portion of the tube into the work station as including rotating the tube about its central axis under the influence of force transmitted from the feed assembly to the tube. It is impossible to use the apparatus disclosed in either, the patent to Horn, et al. or Scott with a feed assembly which rotates a tube. This is because the patent to Horn, et al. must clamp the tube with jaws 62 and 76 during feeding of the tube. The patent to Scott must clamp the tube with a tube clamping member 70 during feeding of the tube. Since the tube of both Horn, et al. and Scott are clamped and held against rotation during feeding of the tube, it is impossible for the apparatus disclosed in these patents to be used with a feed which rotates the tube.

Claim 15 depends from claim 1 and sets forth the step of moving the first portion of the tube into the work station as including engaging the tube with a plurality of feed rollers and rotating the feed rollers to move the tube along a longitudinal central axis of the tube under the influence of force applied to the tube

by the feed rollers. None of the references disclosed in apparatus which includes a mandrel and a feeding apparatus which includes a plurality of rollers in the manner set forth in claim 15.

Claim 16 depends from claim 15 and sets forth the step of rotating on the feed rollers as including rotating at least one of the feed rollers about an axis which is skewed relative to the longitudinal central axis of the tube.

Claim 17 depends from claim 15 and sets forth the step of rotating the feed rollers to move the tube along the longitudinal central axis of the tube as including rotating a first feed roller about a first axis which is skewed relative to the longitudinal central axis of the tube and rotating a second feed roller about a second axis which is skewed relative to the longitudinal central axis of the tube.

Claim 54 depends from claim 1 and sets forth the moving, cutting and directing steps as being repeated until the tube is spent.

Claim 55 depends from claim 1 and sets forth the step of moving a first portion of a tube into a work station as including moving a leading end of the tube into the work station at a first speed. The speed at which the leading end of the tube moves into the work station is reduced to a second speed which is less than the first speed. The leading end of the tube is moved into engagement with a stop while the leading end of the tube is moving at the second speed. There is nothing in the patents to Horn, et al, Scott, Harris and/or Braun, et al which even remotely suggests moving the leading end of the tube into a work station and reducing the speed of movement of the tube to a speed which is less than the first speed. The

tube is moved into engagement with a stop while the leading end of the tube is moving at the second speed.

Claim 57 depends from claim 1 and sets forth the step of moving a first portion of a tube into a work station as including engaging the tube with a plurality of sets of rollers and rotating the rollers on each set of rollers about axes which are skewed relative to each other and which are skewed relative to a longitudinal central axis of the tube. It would be impossible to use the apparatus disclosed in the patent to Harris (4,671,150) with the apparatus disclosed in Horn, et al. (4,205,569) and/or Scott (1,967,737). This is because the patents to Horn, et al. and Scott both contemplate that a work piece will be clamped and held against rotation as it is moved into a work station.

Claim 58 depends from claim 1 and sets forth the step of moving a first portion of the tube into a work station as including engaging the tube with a plurality of feed rollers and rotating the feed rollers to move the tube along a longitudinal central axis of the tube under the influence of force applied to the tube by the feed rollers. None of the references disclose a combination of feed rollers with a mandrel.

Claim 59 depends from claim 58 and sets forth the step of rotating the feed rollers to move the tube along the central axis of the tube as including rotating at least one feed roller about an axis which is skewed relative to the longitudinal central axis of the tube.

Claim 60 depends from claim 58 and sets forth the step of rotating the feed rollers to move the tube along the longitudinal central axis of the tube as including

rotating a first feed roller about a first axis which is skewed relative to the longitudinal central axis of the tube and rotating a second feed roller about a second axis which is skewed relative to the first axis.

Claim 61 depends from claim 1 and sets forth the step of moving the first portion of the tube into a work station as including moving the tube in a first direction along its longitudinal axis to move the first portion of the tube and a mandrel into a telescopic relationship at the work station. An end of the first portion of the tube is pressed against a stop surface at the work station. The second portion of the tube is moved along its longitudinal axis in a direction opposite to the first direction to move the second portion of the tube away from the first portion of the tube after performing the step of cutting the first portion of the tube. A mandrel is withdrawn from a plurality of sections formed by cutting the first portion of the tube. The step of moving the second portion of the tube into the work station includes moving the second portion of the tube along its longitudinal central axis to move the second portion of the tube and the mandrel into a telescopic relationship at the work station. The end of the second portion of the tube is pressed against the stop surface at the work station. There is nothing in the patents to Horn, et al. and/or Scott which suggests withdrawing a mandrel from a plurality of sections formed by cutting a first portion of a tube. In the patent to Scott, a gripper 70 pushes the sections formed by cutting a portion of the tube off of the tube. The mandrel of Scott is not withdrawn from the plurality of sections in the manner set forth in claim 61.

Claim 62 depends from claim 61 and sets forth the step of moving the first portion of the tube and mandrel into a telescopic relationship as including simultaneously moving the tube in the first direction and moving the mandrel in a direction opposite to the first direction. In the patent to Scott, the mandrel is not moved in a direction opposite to the direction in which the tube is moved.

Claim 63 depends from claim 61 and sets forth the step of moving the first portion of the tube and the mandrel into a telescopic relationship while rotating the tube and mandrel at the same speed and in the same direction.

Claim 64 depends from claim 1 and sets forth the step of cutting the first portion of the tube into a plurality of sections as including pressing an end of the first portion of the tube against a stop surface while a stop surface is in a first position. The stop surface is moved to a second position. The step of cutting the second portion of the tube includes pressing an end of the second portion of the tube against the stop surface with the stop surface in the second position. There is nothing in the patents to Horn, et al. and/or Scott which even remotely suggests moving a stop surface in the manner set forth in claim 64.

Independent claim 65 is directed to a method of processing a tube. The method includes rotating a mandrel and rotating the tube. A first portion of the tube is moved into a work station while the tube and mandrel are rotating. The step of moving the first portion of the tube into the work station includes moving a leading end of the tube into the work station at a first speed while rotating the tube. The tube at which the leading end of the tube moves into the work station is reduced to a second speed which is less than the first speed while rotating the

tube. The leading end of the tube is moved into engagement with a stop while the leading end of the tube is moving at the second speed.

In addition, claim 65 sets forth the step of cutting the first portion of the tube into a plurality of sections while rotating the tube and the mandrel. A scrap section is received at a scrap receiving location. Sections of the first portion of the tube other than the scrap section are received at a second receiving location which is separate from the scrap receiving location.

A second portion of the tube is set forth in claim 65 as being moved into the work station while rotating the tube and mandrel. The second portion of the tube is cut into a second plurality of sections. The second plurality of sections are directed to the second receiving locations which is separate from the scrap receiving location.

Claim 65 defines over the prior art, and particularly the patents to Horn, et al. and Scott by setting forth the step of moving a first portion of a tube into a work station at a first speed while rotating the tube. The patent to Horn, et al. is uses its jaws 62 and 76 to grip the tube and does not rotate the tube. The patent to Scott discloses a clamp 70 which grips the tube.

In addition, claim 65 defines over the prior art by setting forth the step of reducing the speed at which the tube moves into the work station to a second speed less than the first speed while rotating the tube. The leading end of the tube is moved into engagement with a stop while the leading end of the tube is moving at the second speed. There is nothing in the prior art which suggests moving a tube into a work station at a first speed, reducing the speed at which the

tube is moving and engaging a stop while the leading end of the tube is moving at the reduced speed.

Claims 66 through 76 depend from claim 65 and define over the prior art for substantially the same reasons as does claim 65 and by virtue of the structure and function set forth in these claims taken in combination with the structure and function of claim 65.

Independent claim 77 is directed to a method of processing a tube. The method includes the steps of rotating a mandrel and rotating the tube. A first portion of the tube is moved into a work station. The step of moving the first portion of the tube into the work station includes the step of rotating the tube at the same speed as the mandrel while the tube is spaced apart from the mandrel. The mandrel and tube are moved into a telescopic relationship while the mandrel and tube are rotating at the same speed. The speed at which the leading end of the tube moves into the work station is reduced from a first speed to a second speed which is less than the first speed. The leading end of the tube is moved into engagement with a stop while the leading end of the tube is moving at the second speed.

In addition, claim 77 sets forth the step of cutting the first portion of the tube into a first plurality of sections while rotating the tube and mandrel. A scrap section is received at a scrap receiving location. Sections of the first portion of the tube other than the scrap section are received at a second receiving location which is separate from the scrap receiving location. The second portion of the tube is moved into the work station while rotating the tube and mandrel. The

second portion of the tube is cut into a second plurality of sections. The second plurality of sections are directed to the second receiving location which is separate from the scrap receiving location.

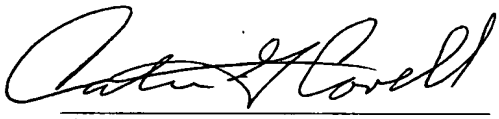
Claim 77 defines over the prior art and particularly the patents to Horn, et al. and Scott, by setting forth the step of moving the first portion of the tube into the work station as including rotating the tube at the same speed as the mandrel and moving the tube and mandrel into a telescopic relationship. The patents to Horn, et al. and Scott do not rotate the tube and then move the tube into a telescopic relationship with a mandrel while the mandrel is rotating at the same speed as the tube. In both the patent to Horn, et al. and the patent to Scott the tube is clamped and held against rotation.

In addition, claim 77 defines over the prior art and particularly the patents to Horn, et al. and Scott by setting forth the step of reducing the speed at which the leading end of the tube moves into the work station from a first speed to a second speed while the tube and mandrel are in the telescopic relationship. Furthermore, claim 77 defines over the prior art by setting forth the step of moving the leading end of the tube into engagement with a stop while the leading end of the tube is moving at the second speed and the mandrel and tube are in the telescopic relationship.

Claims 78 through 84 depend from claim 77 and define over the prior art for substantially the same reasons as does claim 77 and by virtue of the structure and function set forth in these claims taken in combination with the structure and function of claim 77.

In view of the foregoing remarks, it is believed that the claims in this application clearly and patentably define over the prior art. Therefore, it is respectfully requested that the claims be allowed and this application passed to issue. If for any reason the Examiner believes that a telephone conference would expedite the prosecution of this application, it is respectfully requested that the Examiner call applicant's attorneys in Cleveland, Ohio at 621-2234, area code 216. Please charge any deficiency in the fees for this application to our Deposit Account No. 20-0090.

Respectfully submitted,



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